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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,331

09/23/2003

Terunao Hanaoka

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11/03/2005

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EXAMINER

LINDSAY JR, WALTER LEE

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/667,331	Applicant(s) HANAOKA, TERUNAO	
	Examiner Walter L. Lindsay, Jr.	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-20 is/are pending in the application.
 4a) Of the above claim(s) 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8 is/are rejected.
- 7) ☒ Claim(s) 5 and 9-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

This Office Action is in response to an Amendment filed on 8/18/2005.

Currently, claims 1-5 and 8-20 are pending.

Election/Restrictions

1. Claims 18-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected device, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 3/4/2005.
2. Applicant's election with traverse of claims 1-17 in the reply filed on 3/4/2005 is acknowledged. The traversal is on the ground(s) that the device claims wouldn't constitute another search. This is not found persuasive because the device of claim 18 does not have to be made by the same method as described in claim 1 for the device to be made.

The requirement is still deemed proper and is therefore made FINAL.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (U.S. Patent No. 6,333,565 filed 12/25/2001) in view of Heo (U.S. Patent No. 6,389,689 filed 2/17/1998) and Yamaguchi et al. (U.S. Publication No. 2003/0109079 filed 7/30/2002).

Hashimoto shows the method substantially as claimed in Fig. 1 and corresponding text as: forming a wiring pattern (18) over a semiconductor wafer (12), in which an interconnect (14) is formed from an integrated circuit (10), from a pad which is a part of the interconnect, and forming an external terminal (26) on the wiring pattern (col. 5, line 44-col. 6, line 14); forming a resin layer (11) on the semiconductor wafer (col. 5, line 44-col. 6, line 14); forming a mask layer (16) having an opening pattern on the resin layer (col. 5, line 44-col. 6, line 14); and removing a part of the resin layer in a state in which the mask layer is disposed on the resin layer to form an opening in the resin layer (col. 5, line 44-col. 6, line 14) (claim 1). Hashimoto teaches that the mask layer is formed of a resin (col. 6, lines 15-25) (claim 2). Hashimoto teaches that the mask layer is formed of a dry film (col. 6, lines 15-25) (claim 3). Hashimoto teaches that

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a part of the resin layer is removed by sandblasting or etching (col. 5, line 44-col. 6, line 14).

Hashimoto lacks anticipation only in not explicitly teaching: 1) cutting the semiconductor wafer along the opening.

Heo teaches a method of cutting a substrate to a semiconductor package. Heo shows in Fig. 3G the cutting circuit board sheet (20) (col. 4, lines 33-46). The object of this is to provide a semiconductor package, which realizes a small-size semiconductor package without performance deterioration, to meet a tendency to miniaturization of electronic products (col. 2, lines 21-31).

It would be obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Hashimoto by cutting the semiconductor wafer along the opening, as taught by Heo, with the motivation that Heo teaches a semiconductor package, which realizes a small-size semiconductor package without performance deterioration, to meet a tendency to miniaturization of electronic products.

Hashimoto as modified by Heo lacks anticipation only in not explicitly teaching: 1) forming an insulating layer on a semiconductor wafer; and forming a resin layer on the insulating layer and over the semiconductor wafer (claim 1).

Yamaguchi teaches a method of forming a re-wiring lines (3). Yamaguchi shows the formation of an insulating layer (21) over the substrate [0053]. A second insulating layer (22a) and a third (22b) are then formed over the first insulating layer (21) [0055]. These steps are then followed by the formation of the re-wiring lines (3) [0057]. This

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method provides a technique which makes it possible to respond flexibly to alterations in the connections of re-wiring in WLCSP [0012].

It would be obvious to one of ordinary skill in the art, at the time the invention was made, to modify the method of Hashimoto by forming an insulating layer on a semiconductor wafer; and forming a resin layer on the insulating layer and over the semiconductor wafer, as taught by Yamaguchi, with the motivation that Yamaguchi provides a technique, which makes it possible to respond flexibly to alterations in the connections of re-wiring in WLCSP.

Allowable Subject Matter

7. Claims 5 and 9-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter L. Lindsay, Jr. whose telephone number is (571) 272-1674. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter L. Lindsay, Jr.
Examiner
Art Unit 2812

WLL

October 26, 2005